

United States Court of Appeals for the Federal Circuit

04-1616
(Serial No. 08/773,282)

IN RE LEONARD R. KAHN

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Appealed from: United States Patent and Trademark Office, Board of Patent Appeals
and Interferences

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DECIDED: March 22, 2006

Before MICHEL, Chief Judge, LINN, and PROST, Circuit Judges.

LINN, Circuit Judge.

Leonard R. Kahn (“Kahn”) appeals from the final decision of the Board of Patent Appeals and Interferences (“Board”) concluding that claims 1–20 in patent application number 08/773,282 (“the ’282 application”) are unpatentable as obvious under 35 U.S.C. § 103.¹ Because the factual findings underlying the Board’s conclusion are supported by substantial evidence, and because the Board did not commit legal error in concluding that the claims would have been obvious, we affirm.

I. BACKGROUND

A. The Invention

The ’282 application, filed on December 24, 1996 as a continuation-in-part of a series of continuing applications dating back to 1989, involves a “reading machine” that may be used by the blind. Prior to the application, machines that employed memory and display components by which material could be “read” using hand-held optical pens

¹ The Board also affirmed its own rejection of claims 21 and 22 as being non-enabled under 35 U.S.C. § 112, ¶ 1; however, in his opening brief on appeal Kahn withdrew those claims, leaving only claims 1–20 before us.

and speech synthesizers were known in the art. While a user can control these devices by hand to repeat words and to read at various speeds, such control is cumbersome, which makes it difficult for a blind user to study complex publications. Kahn addressed this problem and claims invention in a device that is operated by eye control and sound localization such that it can read out loud the word "looked at" by the user.

Kahn treats claims 1–20 as a group with claim 1 being representative:

1. A reading machine suitable for use by totally blind individuals for reading the complete text, or a selected portion thereof, of a document stored in storage means, at the option of the user, comprising:
 - (a) means of storing at least a portion of the text of the document to be read,
 - (b) means for retrieving a selected portion of said stored text made available for immediate "reading,"
 - (c) means for producing an acoustical display of the selected portion of said stored text, in a page-like format,
 - (d) means for determining the location on the acoustical display towards which the user is "looking," and
 - (e) means for generating speech sounds verbalizing the word that is formatted to appear on the acoustical display at the location the user is "looking" towards.

A preferred embodiment of the '282 patent is illustrated below in Figure 1.

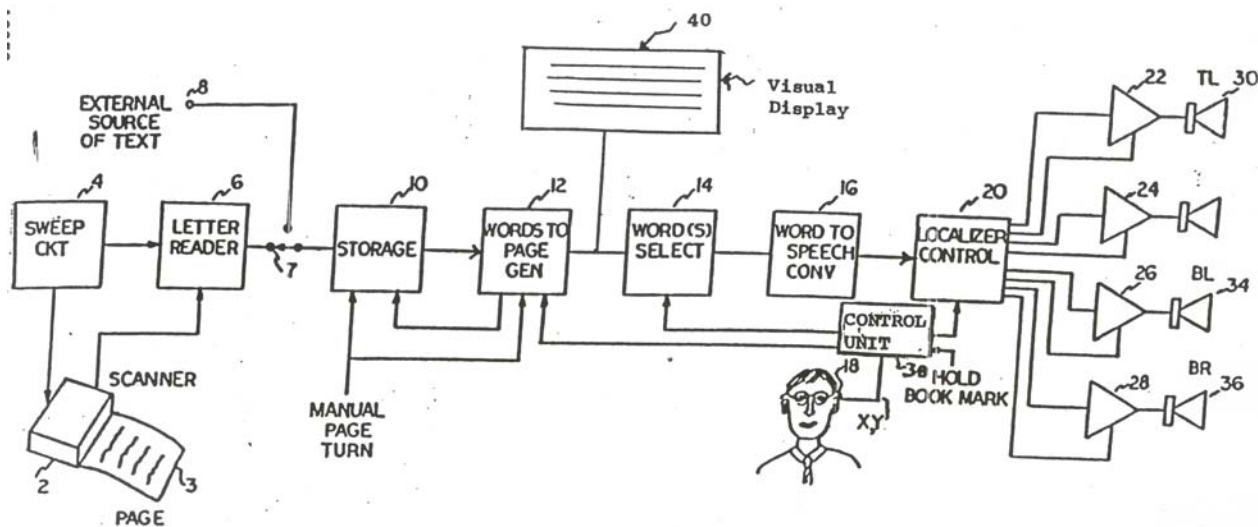


FIG. 1

In operation,

[t]he information being “read” . . . is fed through intermediate storage means to speech synthesizer means for converting the written information to electrical waves representing speech sounds. These electric waves are fed to . . . a four speaker array wherein the speakers are located in a fashion so that the artificial sound image can be placed at various points on the artificial screen or page allowing the user to hear the words at the desired locations. These locations would be selected by the user looking at a specific location on the artificial screen or page.

The user would then move his or her eyes to “look” where the next word would be expected to appear, i.e., directly to the right of the spoken word. This would then cause the next word to be “spoken” and the sound image would appear slightly to the right. This motion is achieved by energizing the four speaker array with different levels of audio power. . . .

When the user completes the “reading” of the last word on the page, . . . the reader would have the option of rereading a section on the page or causing the page to be “turned.” If the user wishes to reread . . . , he can direct his attention to the material to be reread by “looking” at the portion of the page where he remembers hearing the material.

On the other hand, if he wishes to continue reading the material he can turn the page by looking along the bottom line past the right hand edge of the “page”. The first word on the new page would be heard when the reader directed his or her attention to the upper left hand corner of the page where the first word on the new page would be expected.

'282 application at 11-13.

According to the specification, the device can employ a conventional scanner to input data; a conventional character recognition device to translate and send data to a storage device; and a page generator to take data from the storage device and format it for a visual display and for a word selector, the latter of which can send the data to a conventional speech synthesizer. After an optical sensor detects where a user is “looking” and a word is “selected” for vocalization, the synthesizer feeds an audio signal to a localizer control. Loud speakers are arranged at the corners of the “page” to allow the user to confirm localization of sound. The specification further indicates that

[t]here are a number of devices available for sensing where an individual is looking. For example, Garwin et. al. 4,595,990 . . . , Anderson

et. al. 4,579,533 . . . and Stanton 4,322,744 More specifically, Anderson's [sic] patent discusses feed-back which may be visual, auditory or tactile to verify decisions by eye control equipment.

However, such inventions are not suitable for totally blind individuals who are not verifying where they are looking but are using their eyes to direct which part of the artificial page should be read to produce a sound image. This makes essential a two dimensional stereo sound stage which the blind person solely depends upon.

'282 application at 16.

B. The Prior Art

The Board's rejection was based on Garwin et al., U.S. Patent No. 4,595,990 (issued June 17, 1986) ("Garwin"), in view of Anderson et al., U.S. Patent No. 4,406,626 (issued Sept. 27, 1983) ("Anderson '626"), Anderson et al., U.S. Patent No. 4,579,533 (issued April 1, 1986) ("Anderson '533"), and Stanton, U.S. Patent No. 4,322,744 (issued March 30, 1982) ("Stanton"). The Board alternatively used Anderson '626 or '533 as primary references.

Garwin discloses an eye-controlled interactive information processor that senses the portion of a visual display at which the user is looking. The processor is connected to the display, which, in turn, can be partitioned so that different information is displayed in discrete areas. By gazing in different directions, the user informs the processor of the displayed item that is selected. Garwin, col. 2, ll. 60-68. The preferred embodiment employs a reflected light eye-tracking device to determine where the user is looking. Id., col. 3, l. 66–col. 4, l. 62. The eye-interactive control generally uses a technique where the user is presented with a number of targets having some meaning, such as "words or phrases" displayed on screen. Id., col. 9, ll. 62-67. "Visual, auditory or tactile" feedback is then given to the user to indicate that a selection has been received. Id., col. 2, ll. 10-11; col. 11, ll. 59-64. The user then can verify or cancel the selection. Id.,

col. 10, ll. 1-6. Garwin states that “it will be apparent to one skilled in the art that . . . the benefits of the invention will be achieved by many types of apparatus.” Id., col. 2, ll. 50-53. It can be used for “request[ing] display of a page of text from a . . . table of contents,” id., col. 3, ll. 42-44, or “[other] presentation of textual material,” id., col. 10, ll. 31-33.

Anderson '626 discloses an interactive “electronic teaching aid” which enables a user viewing text on a display to designate any words or portion of text for immediate audible vocalization. Anderson '626, col. 1, l. 8; col. 2, ll. 11-17. The components include: a selector switch, which when in the “text” position, causes data to be transmitted to a monitor and displayed in legible form, id., col. 3, ll. 27-31; an advance button, which when depressed allows the user to select and retrieve the next page of text from memory, id., col. 3, ll. 31-41; a memory, which can store each word of the text coded for speech, id., col. 3, l. 66–col. 4, l. 6; and a word designator light pen, which the user can place on a word to hear the word vocalized through the speaker, id., col. 3, ll. 54-68; col. 10, ll. 51-58. Anderson '533 discloses an improved microprocessor-based version of Anderson '626. Anderson '533, col. 1, ll. 19-24, 41-56.

Stanton discloses an acoustical imaging system for use by visually impaired individuals that uses horizontal and vertical directional sound to represent visual aspects of an environment. Stanton states that a user can locate “the position of a virtual sound source as representing a point in space” such that different signals may represent different directions. Stanton, col. 1, ll. 58-61. The preferred embodiment features four loud speakers or transducers mounted at the corners of a vertical display panel. Id., col. 2, ll. 54-55. When the user moves the cursor, the sound emanating from the

speakers is phase shifted to produce a virtual sound seeming to come from a particular location related to the position of the cursor. Id., col. 1, l. 66–col. 2, l. 2; col. 2, ll. 55-63. In another embodiment, a quadraphonic headset is used in place of the transducers to achieve the effect of producing a virtual sound identifying a position. Id., col. 4, ll. 26-35. Stanton states that the device may be used as a “rudimentary reading device.” Id., col. 1, ll. 62.

C. The Board Decisions

Kahn filed the '282 application with 22 claims as a continuation-in-part of application number 07/645,102 (“the '102 application”), which was filed in 1991. The '102 application was a continuation-in-part of a series of abandoned continuing applications dating back to application number 07/338,597, which was filed in 1989. While claims 21 and 22 of the '282 application are not at issue in this appeal, the Board addressed those claims on several occasions, which led to the creation of a substantial Board history. As a result, the final decision with respect to the obviousness rejection of claims 1–20 spans three decisions, which include Ex Parte Kahn, No. 2004-1091 (B.P.A.I. June 30, 2004) (“2004 decision”); Ex Parte Kahn, No. 2000-1130 (B.P.A.I. Feb. 24, 2003) (“2003 decision”); and Ex Parte Kahn, No. 94-2233 (B.P.A.I. Sept. 21, 1995) (“1995 decision”).

In its 1995 decision, after reversing the examiner’s anticipation rejection, the Board sua sponte rejected the relevant claims under § 103. The Board found that Garwin taught “the concepts of determining where on a display screen a user is ‘looking’ . . . and giving either visual or auditory feedback to the user” and that “[w]hile nothing specific is said as to acoustically reproducing a word displayed at that location,

common sense . . . indicate[s] that such an auditory feedback response is appropriate in view of such auditory feedback confirmation clearly suggested by Anderson '533 or '626.” 1995 decision, slip op. at 5 (emphasis in original). The Board found that “to whatever extent Garwin is not concerned with text per se, [the Anderson] references are” and “teach the advantages of text display with audio reproduction,” concluding that

the artisan would have found it to have been obvious to have modified Garwin for display of text passages and selection of works therefrom with vocalization thereof as feedback confirmation, all as taught by Anderson '626 or '533 . . . [or] to have modified either of these Anderson references to use the eye control of Garwin so that the user's hands would have been free for other tasks.

Id., slip op. at 5-6. The Board found that Stanton “teaches the benefit of acoustic imaging in reading systems” and that “[i]t would have, thus, been further obvious to the artisan to add advantageous acoustic imaging to either of the above-noted modified devices of Garwin or the Anderson patents which would have word positions acoustically and visually indicated.” Id., slip op. at 6.

In its 2003 decision, the Board expressly incorporated the findings and rationale from both its 1995 decision and the Examiner's Answer filed on April 24, 2000. 2003 decision, slip op. at 3-4. In the Answer, the Examiner had explained that Garwin teaches “a buffer memory which stores at least a portion of the information derived from sensing means and means for subsequently retrieving the sensed information,” “means for displaying stored written text,” and “means for determining which word of the displayed text the user is looking towards”; that Anderson '626 teaches “means for generating speech sounds verbalizing the looked at word”; and that Stanton teaches “means for verbalizing each word the user's eyes are directed towards in two dimensional stereo.” Examiner's Answer at 5-6. Rejecting Kahn's argument that

hindsight drove the combination of references, the Board reiterated that the rationale of the 1995 decision was correct and explained that motivation “clearly is based upon a prospective look at the state of the art.” 2003 decision, slip op. at 8-11.

The Board addressed several other arguments. First, the Board rejected the argument that the invention’s intended use supports patentability, noting that “the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus [from] a prior art apparatus satisfying the claimed structural limitations.” Id. at 5-6. Second, the Board rejected the argument that because “the purposes of the [prior art] references . . . are different from the [invention’s] purpose,” the invention is non-obvious, explaining that “[t]he law . . . does not require that references be combined for reasons contemplated by an inventor” and that “prior art need not suggest the same problem set forth by appellant.” Id. at 6-7. Third, the Board rejected the arguments that features of a secondary reference be capable of incorporation into the structure of a primary reference and that the invention be suggested completely by one reference. Id. at 7. Finally, the Board rejected a “long-felt need” argument, explaining that Khan had not presented any objective evidence of a long-standing problem or long-standing need in the art. Id. at 11-12.

In its 2004 decision, the Board entered a final rejection of claims 1–20 based on its 2003 decision. Kahn timely appealed to this court. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

II. DISCUSSION

A. The Parties’ Arguments

Khan advances two main arguments. First, Khan asserts that the Board's finding of motivation to combine was unsupported by substantial evidence. Citing In re Lee, 277 F.3d 1338 (Fed. Cir. 2002), and In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998), Khan argues that the Board overstated the knowledge of the skilled artisan and employed improper hindsight. Specifically, Khan asserts that a skilled artisan would not have sought to augment Garwin with sound because the resulting device would be more expensive and less reliable for the purpose intended by Garwin. He contends that just because Stanton teaches use of sound to confirm a visual perception of a shape like a letter—which provides a “rudimentary” reading capability—does not mean that the reference teaches how to enable a blind user to “read” and “reread” entire words and phrases quickly. Khan further contends that Stanton teaches away from a system that employs iris eye direction sensing because Stanton requires the user to hold his head steady, because eyes are not involved in its localization procedure, and because the combined device would be expensive and inoperable. Second, Khan argues that the court should take “judicial notice” that his reading machine addresses a “long-felt, but unresolved need,” and that this consideration is sufficient to rebut a prima facie case of obviousness.

The Patent and Trademark Office (“PTO”) counters that Lee and Rouffet are distinguishable because here the Board identified motivations to combine the references based on specific statements in the references and on the nature of the problem to be solved. As to long-felt need, the PTO argues that Kahn proffered no actual evidence, and that Kahn's argument alone is insufficient to rebut a prima facie case.

B. Standard of Review

A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the pertinent art. 35 U.S.C. § 103(a) (2000); Graham v. John Deere Co., 383 U.S. 1, 13-14 (1966). The ultimate determination of whether an invention would have been obvious is a legal conclusion based on underlying findings of fact. In re Dembiczak, 175 F.3d 994, 998 (Fed. Cir. 1999). We review the Board's ultimate determination of obviousness de novo. Id. However, we review the Board's underlying factual findings, including a finding of a motivation to combine, for substantial evidence. In re Gartside, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

Substantial evidence is something less than the weight of the evidence but more than a mere scintilla of evidence. Id. at 1312 (citing Consol. Edison Co. v. NLRB, 305 U.S. 197, 229-30 (1938)). It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. Consol. Edison, 305 U.S. at 229-30. In reviewing the record, we must take into account evidence that both justifies and detracts from the factual determinations. Gartside, 203 F.3d at 1312 (citing Universal Camera Corp. v. NLRB, 340 U.S. 474, 487-88 (1951)). We note that the possibility of drawing two inconsistent conclusions from the evidence does not prevent the Board's findings from being supported by substantial evidence. Id. Indeed, if a reasonable mind might accept the evidence as adequate to support the factual conclusions drawn by the Board, then we must uphold the Board's determination. Id.

C. Analysis

In assessing whether subject matter would have been non-obvious under § 103, the Board follows the guidance of the Supreme Court in Graham v. John Deere Co. The Board determines “the scope and content of the prior art,” ascertains “the differences between the prior art and the claims at issue,” and resolves “the level of ordinary skill in the pertinent art.” Dann v. Johnston, 425 U.S. 219, 226 (1976) (quoting Graham, 383 U.S. at 17). Against this background, the Board determines whether the subject matter would have been obvious to a person of ordinary skill in the art at the time of the asserted invention. Graham, 383 U.S. at 17. In making this determination, the Board can assess evidence related to secondary indicia of non-obviousness like “commercial success, long felt but unresolved needs, failure of others, etc.” Id., 383 at 17-18; accord Rouffett, 149 F.3d at 1355. We have explained that

[t]o reject claims in an application under section 103, an examiner must show an unrebutted prima facie case of obviousness On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of prima facie obviousness or by rebutting the prima facie case with evidence of secondary indicia of nonobviousness.

Rouffett, 149 F.3d at 1355.

Most inventions arise from a combination of old elements and each element may often be found in the prior art. Id. at 1357. However, mere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole. Id. at 1355, 1357. Rather, to establish a prima facie case of obviousness based on a combination of elements disclosed in the prior art, the Board must articulate the basis on which it concludes that it would have been obvious to make the claimed invention. Id. In practice, this requires that the Board “explain the reasons one of ordinary skill in the art would have been motivated to select the references and to

combine them to render the claimed invention obvious.” Id. at 1357-59. This entails consideration of both the “scope and content of the prior art” and “level of ordinary skill in the pertinent art” aspects of the Graham test.

When the Board does not explain the motivation, or the suggestion or teaching, that would have led the skilled artisan at the time of the invention to the claimed combination as a whole, we infer that the Board used hindsight to conclude that the invention was obvious. Id. at 1358. The “motivation-suggestion-teaching” requirement protects against the entry of hindsight into the obviousness analysis, a problem which § 103 was meant to confront. See 35 U.S.C. § 103 (stating that obviousness must be assessed “at the time the invention was made”); Dembiczak, 175 F.3d at 998 (“[I]t is this phrase that guards against entry into the tempting but forbidden zone of hindsight.” (internal quotations omitted)); Giles S. Rich, Laying the Ghost of the Invention Requirement, 1 APLA Q.J. 26-45 (1972), reprinted in 14 Fed. Cir. B.J. 163, 170 (2004) (“To protect the inventor from hindsight reasoning, the time is specified to be the time when the invention was made.”) (emphasis in original). The Supreme Court recognized the hindsight problem in Graham and proposed that “legal inferences” resulting from “secondary considerations” might help to overcome it. 383 U.S. at 36 (“[Secondary considerations] may also serve to guard against slipping into use of hindsight, and to resist the temptation to read into the prior art the teachings of the invention in issue.” (internal quotations omitted)). By requiring the Board to explain the motivation, suggestion, or teaching as part of its prima facie case, the law guards against hindsight in all cases—whether or not the applicant offers evidence on secondary considerations—which advances Congress’s goal of creating a more practical, uniform,

and definite test for patentability. See Dann, 424 U.S. at 225-26 (“[I]t was only in 1952 that Congress, in the interest of ‘uniformity and definiteness,’ articulated the requirement in a statute.” (quoting S. Rep. No. 1979, at 6 (1952); H.R. Rep. No. 1923, at 7 (1952))); Graham, 383 U.S. at 17 (“The § 103 [test], when followed realistically, will permit a more practical test of patentability.”).

Although our predecessor court was the first to articulate the motivation-suggestion-teaching test, a related test—the “analogous art” test—has long been part of the primary Graham analysis articulated by the Supreme Court. See Dann, 425 U.S. at 227-29; Graham, 383 U.S. at 35.² The analogous-art test requires that the Board show that a reference is either in the field of the applicant’s endeavor or is reasonably pertinent to the problem with which the inventor was concerned in order to rely on that reference as a basis for rejection. In re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992). References are selected as being reasonably pertinent to the problem based on the judgment of a person having ordinary skill in the art. Id. (“[I]t is necessary to consider ‘the reality of the circumstances,’—in other words, common sense—in deciding in which

² In Graham, Cook Chemical challenged the court’s reliance on a reference that it believed was not in a “pertinent prior art,” arguing that while the invention involved a container having a “pump sprayer,” the reference related to containers having “pouring spouts.” 383 U.S. at 35. In reaching the conclusion that the claimed subject matter was obvious, the Court rejected Cook’s argument, explaining that the problem to be solved was a mechanical closure problem and that a closure device in such a closely related art was a pertinent reference. Id. Similarly, in Dann, the invention involved the use of automatic data processing equipment to analyze transactions within a single bank account. 425 U.S. at 227-28. The Dirk reference that the Court relied upon in making its obviousness case involved a similar system used in a non-banking context. Id. at 228. Citing Graham, the Court explained that a person of ordinary skill in the art would be aware of this reference and the Court could rely upon it in making its obviousness case because “[w]hile the Dirk’s invention is not designed specifically for application to the banking industry many of its characteristics and capabilities are similar to those of respondent’s system.” Id. at 229.

fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” (quoting In re Wood, 599 F.2d 1032, 1036 (C.C.P.A. 1979))). We have explained that this test begins the inquiry into whether a skilled artisan would have been motivated to combine references by defining the prior art relevant for the obviousness determination, and that it is meant to defend against hindsight. See id.; In re Clay, 966 F.2d 656, 659-60 (Fed. Cir. 1992).³

The motivation-suggestion-teaching test picks up where the analogous art test leaves off and informs the Graham analysis. To reach a non-hindsight driven conclusion as to whether a person having ordinary skill in the art at the time of the invention would have viewed the subject matter as a whole to have been obvious in view of multiple references, the Board must provide some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct. The requirement of such an explanation is consistent with governing obviousness law, see § 103(a); Graham, 383 U.S. at 35; Dann, 425 U.S. at 227-29, and helps ensure predictable patentability determinations.

³ In In re Clay, we reasoned that

[i]f a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.

966 F.2d at 659-60. In In re Oetiker, we held that “the combination of elements from non-analogous sources, in a manner that reconstructs the applicant’s invention only with the benefit of hindsight, is insufficient to present a prima facie case of obviousness.” 977 F.2d at 1447.

A suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as

the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. . . . The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.

In re Kotzab, 217 F.3d 1365, 1370 (Fed. Cir. 2000) (internal citations omitted).

However, rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. See Lee, 277 F.3d at 1343-46; Rouffett, 149 F.3d at 1355-59. This requirement is as much rooted in the Administrative Procedure Act, which ensures due process and non-arbitrary decisionmaking, as it is in § 103. See id. at 1344-45.

In considering motivation in the obviousness analysis, the problem examined is not the specific problem solved by the invention but the general problem that confronted the inventor before the invention was made. See, e.g., Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc., 424 F.3d 1293, 1323 (Fed. Cir. 2005) (“One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.”); Ecolochem, Inc. v. S. Cal. Edison Co., 227 F.3d 1361, 1372 (Fed. Cir. 2000) (“Although the suggestion to combine references may flow from the nature of the problem, ‘[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.’” (internal citation omitted) (quoting Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 139 F.3d 877, 881 (Fed. Cir. 1998))); In re Beattie, 974 F.2d 1309, 1312 (Fed. Cir. 1992)

("[T]he law does not require that the references be combined for the reasons contemplated by the inventor."); Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1337 (Fed. Cir. 2005) (characterizing the relevant inquiry as "[would] an artisan of ordinary skill in the art at the time of the invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention,[] have selected the various elements from the prior art and combined them in the manner claimed"); see also Graham, 383 U.S. at 35 (characterizing the problem as involving mechanical closures rather than in terms more specific to the patent in the context of determining the pertinent prior art). Therefore, the "motivation-suggestion-teaching" test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims. See Cross Med. Prods., 424 F.3d at 1321-24. From this it may be determined whether the overall disclosures, teachings, and suggestions of the prior art, and the level of skill in the art—i.e., the understandings and knowledge of persons having ordinary skill in the art at the time of the invention—support the legal conclusion of obviousness. See Princeton Biochemicals, 411 F.3d at 1338 (pointing to evidence supplying detailed analysis of the prior art and the reasons one of ordinary skill would have possessed the knowledge and motivation to combine).

In this case, Khan does not dispute that each element of his claimed invention can be found in either Garwin, Anderson '533 and '626, or Stanton, or that each reference lies in the pertinent art. Nor does Khan take issue with the Board's finding that a person having ordinary skill in the art would have been motivated to modify

Anderson '533 or '626 in view of Garwin, or vice versa. See Garwin, col. 2, ll. 50-53, col. 10, ll. 31-35 (stating that “it will be apparent to one skilled in the art that . . . the benefits of the invention will be achieved by many types of apparatus” which may be “virtually [any device] susceptible of control by a computer, including . . . [those geared] to presentation of textual material”).

Rather, Khan’s challenge to the sufficiency of the evidence supporting the Board’s prima facie case is directed at the motivation to apply the teachings of Stanton to achieve the claimed invention. In the 1995 decision, the Board found that Stanton “teaches the benefit of acoustic imaging in reading systems.” The Board carefully examined the Anderson/Garwin combination and recognized that a skilled artisan confronted with the problem faced by Kahn would have been led by the teaching of Stanton “to add advantageous acoustic imaging” to the Anderson/Garwin combination so that it would have “word positions acoustically and visually indicated.”

Stanton teaches that “[its] invention relates to augmentation of vision of those who have lost vision or have had their visual faculties diminished,” col. 1, ll. 6-8, that it is “useful in teaching a deprivee to apprehend the position of a virtual sound source as representing a point in space,” id., ll. 58-59, and that it may be used as a “rudimentary reading device,” id., ll. 61-62. A skilled artisan, who knows of a “learning machine” that is capable of reading a word aloud by selecting the word on the screen at which the user is looking and seeks to provide a visually-impaired user better control over word localization,⁴ would have reason to solve that problem by adding two-dimensional sound

⁴ Kahn does not argue that one of ordinary skill in the art at the time of the invention would be unaware of the nature of this problem, and there is nothing in the

in view of Stanton's express teaching that two-dimensional sound can be used to "substitute" for the lost sense of sight, to locate a point in space, and to create a "rudimentary reading device" for the visually impaired. See Cross Med. Prods., 424 F.3d at 1323 (holding that "[o]ne of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings"). Because the Board need only establish motivation to combine by a preponderance of the evidence to make its prima facie case, see In re Glaug, 283 F.3d 1335, 1338 (Fed. Cir. 2002), we conclude that substantial evidence supports the finding of a motivation to combine the teachings of Stanton to the Anderson/Garwin combination. Although a reasonable person might reach the opposite conclusion, there is far more than a "mere scintilla" of evidence present from which a reasonable mind could find a motivation to combine.

We reject Khan's argument that the Board overstated the knowledge of the person having ordinary skill in the art or employed improper hindsight in making its prima facie case. In both Lee and Rouffet, the Board recognized that the knowledge of the skilled artisan could provide the motivation to combine but concluded that no such knowledge was articulated and placed on the record. Lee, 277 F.3d at 1343-45; Rouffet, 149 F.3d at 1357-59. In this case, motivation to combine was articulated and placed on the record. As to the Anderson/Garwin combination, the Board identified the desire to free up the hands of the Anderson user as the problem confronted and found that Garwin itself evidenced the broad applicability of its optical controls to the claimed

record to suggest this to be the case, unlike the facts in the decision of our predecessor court in In re Spinnoble, 405 F.2d 578 (C.C.P.A. 1969).

invention. As to the addition of Stanton, the Board identified express teachings in Stanton of “the benefit of acoustic imaging in reading systems” and properly related those teachings to the Anderson/Garwin combination.

We find Khan’s remaining arguments unpersuasive. First, even if applying Stanton to Garwin resulted in a device that would be less effective for the purpose intended by Garwin, the teaching of the Garwin reference is not limited to the specific invention disclosed. See In re Heck, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (explaining that “[t]he use of patents as references is not limited to what the patentees describe as their own inventions” (internal quotations omitted)). As noted above, Garwin states that his invention is intended to be applied to “virtually [any device] susceptible of control by a computer, including . . . [those geared] to presentation of textual material,” Garwin, col. 2, ll. 50-53; col. 10, ll. 31-35. Second, although Khan may have envisioned something different than the skilled artisan when he looked at Stanton because Stanton teaches only a rudimentary reading device, the skilled artisan need not be motivated to combine Stanton for the same reason contemplated by Khan. See In re Beattie, 974 F.2d 1309, 1312 (Fed. Cir. 1992) (“As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor.” (citing In re Kronig, 539 F.2d 1300, 1304 (C.C.P.A. 1976))). Third, Khan’s argument that Stanton itself teaches away from the combination with Garwin lacks support in the reference. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the

applicant.” In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994). Nothing in Stanton can be said to discourage a person having ordinary skill in the art from using the visual-input control taught in Garwin in the claimed combination or to lead the skilled artisan in a direction divergent from the path taken by Kahn.

Finally, we note that Kahn had an opportunity to rebut the Board’s prima facie case by offering evidence of objective indicia of non-obviousness. Khan put on no evidence, but invites this court to take “judicial notice” of the long-felt but unresolved need for a device that will help the blind read. We must decline Khan’s invitation for the following reasons. First, “long-felt but unresolved need” is not the kind of undisputed fact to which courts are accustomed to taking “judicial notice” because a finding either way can “reasonably be questioned.” See Fed. R. Evid. 201(b) (“A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.”); In re Fielder, 471 F.2d 640, 642-43 (C.C.P.A. 1973) (declining to take judicial notice of prior art references that appellant submitted as objective evidence of non-obviousness because appellant did not offer references to the Board and they were not part of the record). Second, our precedent requires that the applicant submit actual evidence of long-felt need, as opposed to argument. This is because “[a]bsent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is not evidence of nonobviousness.” Iron Grip Barbell Co. v. USA Sports, Inc., 392 F.3d 1317, 1325 (Fed. Cir. 2004); accord In re Wright, 569 F.2d 1124, 1127 (C.C.P.A. 1977).

III. CONCLUSION

Because the factual findings underlying the Board's analysis, including the findings on motivation to combine, are supported by substantial evidence, we conclude that the Board did not err in rejecting claims 1–20 as prima facie obvious. Because Khan did not rebut the Board's prima facie case, the Board's decision is

AFFIRMED.